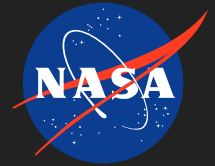


Low Energy Mission Planning Toolbox, Phase I

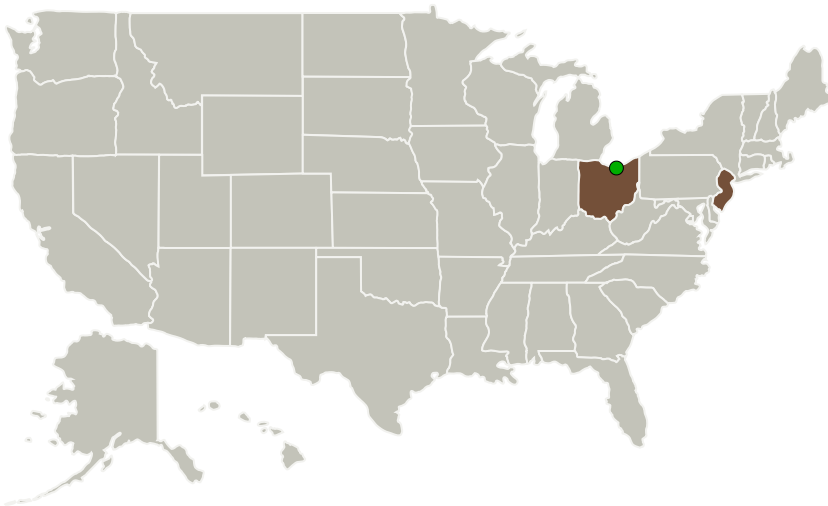
Completed Technology Project (2010 - 2010)



Project Introduction

The Low Energy Mission Planning Toolbox is designed to significantly reduce the resources and time spent on designing missions in multi-body gravitational environments. It provides a means for quickly planning low energy missions that take advantage of multi-body gravitational environments. The high-speed, efficient process will allow rapid comparison between low energy methods (e.g. ballistic lunar capture transfer trajectories) and their direct counterparts (e.g. Hohmann transfers). The tools leverage recent research on low energy mission design methods to produce algorithms that are stable, hold potential for automation in certain situations, and can be easily interfaced with the NASA open source mission planning tool GMAT.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Princeton Satellite Systems	Lead Organization	Industry	Plainsboro, New Jersey
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



Low Energy Mission Planning Toolbox, Phase I

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Primary U.S. Work Locations

New Jersey

Ohio

Project Transitions

 **January 2010:** Project Start

 **July 2010:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/139175>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Princeton Satellite Systems

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

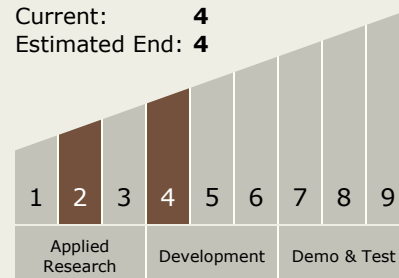
Carlos Torrez

Principal Investigator:

Paul Griesemer

Technology Maturity (TRL)

Start: 2
Current: 4
Estimated End: 4



Low Energy Mission Planning Toolbox, Phase I

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Technology Areas

Primary:

- TX10 Autonomous Systems
 - └ TX10.2 Reasoning and Acting
 - └ TX10.2.2 Activity and Resource Planning and Scheduling

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System